



## MULTI-USE DIAPER

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### CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable

### STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable

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NOV 14 2002

### INCORPORATION BY REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC

TECHNOLOGY CENTER R3700

Not Applicable

### TECHNICAL FIELD

The invention relates to the field of disposable diapers. In particular it relates to a diaper having a plurality of absorbent pads inside a shell to be used one at a time and discarded one by one through suitable individual openings in the shell. A disposal bag affixed to the front end of the pad and to its corresponding opening, encloses the pad as it is being pulled out of the shell. The disposal bag is sealed at closure area and separated from shell.

### BACKGROUND ART

Disposable diapers are widely used by infants, incontinent adults and by patients in hospitals. Said diapers have improved significantly in the last twenty years or so in order to incorporate desirable characteristics such as enhanced liquid retention in the absorption area and a watertight closure about the legs and waist. Other characteristics have been added to the essential design to make disposable diapers ever more practical. For example, visible indicators telling when the diaper is wet and must be changed, better or different linings that make them more comfortable, aromatic aids to make the surroundings more pleasant, and many more additions still.

The basic design of the disposable diaper, however, has not changed; essentially, it remains disposable after one use. One-use disposable diapers are now handy and difficult to do without. At the same time, they are also costly and must be dumped, adding to problems related to landfills in particular and to those of the environment in general.

It is noteworthy that in spite of so many improvements, all diapers are not entirely practical in all circumstances. For example, changing a diaper in a crowded area such as a shopping mall is difficult since it involves undressing the user in order to put on a new diaper. Also, carrying replacement diapers may be inconvenient, just as disposing of the used diaper may not be easy in some cases because of its bulk and smell. Undressing a baby in other circumstances such as inside a small car, in an airplane lavatory or in cold weather, can be awkward. Adult users may find it difficult as well in similar and in different circumstances. Hospital nurses must dedicate a great amount of effort and time just to keep conventional diapers timely disposed of and replaced.

The invention solves these and other problems while reducing waste and related expenses.

#### **BRIEF SUMMARY OF THE INVENTION.**

The invention is a disposable diaper having a multiplicity of absorbent pads designed for an easy disposal and automatic isolation in a disposal bag. Absorbent pads are stacked one atop the other, each connected to an opening and an associated disposal bag. Wet or soiled pads are easily pulled out, leaving the next one in the stack ready, in position, for use. Disposal of pads takes place without undressing the wearer, without touching or smelling the used pad, affording thus great convenience to user and/or to person in charge of user.

In this light, the object of the invention is to provide a multiple pad diaper that will enable easy disposal of used pads while continuing to provide an extended use.

Another object is reducing the cost of disposable diapers by only discarding the absorbent portion while retaining the garment portion for extended use.

Still another object is reducing waste by reducing the number of shells or garments that are disposed of along with wet or soiled pads in single-use disposable diapers.

## IN THE DRAWINGS

Figure 1 is a perspective view of the invention showing an open diaper with its internal pad stack and front openings for retrieving used pads.

Figure 2 is a cut-away side view of a single pad removed from pad stack and shell, just inside disposal bag.

Figure 3 is a cut-away view showing a pad stack of 3 pieces.

## DETAILED DESCRIPTION OF THE INVENTION

The invention, as shown in Figure 1, is a multi-use diaper consisting of an impermeable garment or shell 101 shaped to close around the waist and legs of the user. Waist portion 102 and leg portion 103 are shown in Fig 1. Located inside shell 101 is a stack or pile of pads 104. Each pad in stack 104 is connected to its own opening 107 in shell 101, as illustrated in Fig. 3.

Pad stack 104 may contain any number of pads, but more than five or six may be too bulky for practical purposes. For this reason only, a three-pad stack is used to illustrate the invention.

Pad stack 104 is a set of disposable pads designed to receive human liquid and solid waste and is located within the enclosure defined by shell 101. Each set of pads 104 consists of a multiplicity of absorbent pads. Each pad 104 comprises absorbent portion 105, impermeable lining 106, tongue 108 and disposal bag 111. Said bag 111 is used to totally enclose and isolate a used pad as it is being pulled out from its working position in pad stack 104, outside shell 101, before disposal.

Whenever a pad becomes wet or soiled, it can be removed, leaving in place a new and unused pad ready to receive liquid and solid waste.

Each pad 109 in stack 104 may be held in place with tiny breakaway ties 201 which snap and release their corresponding pad as it is being pulled away from stack 104 and into bag 111. Elastic guides or folds 110, shown in Fig. 1 help keep stack 104 in place and provide a comfortable fit.

Tongue 108 may bear a suitable indication such as a number, a letter or an illustration to keep count of pads 104 already spent and of those still available.

While it may be thought convenient to have more than one opening for pads 104, such as having one in the front and one in the back, in practical terms just a front opening will suffice. The invention is described and illustrated with just a front opening for each pad 109.

Pad stack 104 may consist of a simple multiplicity of pads, in one essential embodiment of the invention. Other combinations are possible, such as the incorporation of cleansing wipes, not shown, but generally resembling pad 109 in shape and size, interposed between pads 109 to wipe and clean as they are removed, assuring a fresh start for the new pad 109. Similarly, said cleansing wipes may consist of one or more portions to provide a sequence of cleansing and deodorizing functions as they are removed.

Integral plastic bag 111 is provided with each pad to enclose or wrap around said pad as it is being pulled out through opening 107. Thus, each pad 109 incorporates bag 111, which is a tubular, or elongated bag suitably wrapped around and fastened to one end of pad 109 at the point where absorbent portion 105 ends and tongue 108 begins. Bag 111 is secured, at its other end, to shell 101. When tongue 108 is grasped and pulled to retrieve used pad 109, said pad is enveloped by bag 111 as said pad is being pulled out. Thus, when pad 109 is totally outside shell 101, it is totally inside bag 111. At this point, bag 111 is separated from shell 101 at breakaway area 112. Additionally, bag 111 may comprise integral closure means 113 to seal in pad 109.

The invention as described above may be used in the field of disposable diapers, in one practical embodiment. It is not limited to this application, however, since it may be incorporated into a more permanent garment. Such a permanent garment would use more convenient and/or expensive and/or specific materials adapted to different climates or activities. Thus, a re-usable leather diaper which may be found more adequate for some uses, or a diaper shell padded for comfort or cold weather, are logical incorporations of the invention.